

PATENT SPECIFICATION

W1464-02

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464,693

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Complete Specification Accepted: April 22, 1937.



PROVISIONAL SPECIFICATION

Improvements in and relating to Cinematograph Projectors

We, THE BRITISH THOMSON-HOUSTON COMPANY, LIMITED, a British Company, having its registered office at Crown House, Aldwych, London, W.C.2,

5 STANLEY ROBERT EADE, of "The Elms," Clifton, and GEORGE SAIL CAMPBELL LUCAS, of 64, Fisher Avenue, Hillmorton Paddox, both of Rugby, in the County of Warwick, both British subjects, do
10 hereby declare the nature of this invention to be as follows:—

This invention relates to cinematograph projectors and more particularly to the application of gaseous discharge lamps to
15 cinema projectors for the purpose of providing the source of illumination by means of which the film pictures are projected on a screen. It more particularly refers to the application of "extra high
20 pressure" discharge lamps which require for their successful operation to be cooled by a circulating system containing water or other suitable cooling medium.

It is well known that to ensure safety
25 in the projection of highly inflammable cinematograph films under modern conditions of intense illumination, special provisions must be made for cooling the projection gate and the circulation of
30 water and air has, inter alia, been proposed for this purpose.

The object of the present invention is to provide improved cooling means and to that end it consists in constructing the
35 lamp chamber of a cinematograph projector in which one or more extra high pressure gaseous discharge lamps are

housed integrally with the gate structure and in cooling the lamp or lamps together with the whole structure by the circulation of water or other cooling medium. 40

The accompanying drawing diagrammatically illustrates one method of carrying this invention into effect. In the drawing 1 represents the projector gate
45 provided with a projection aperture 2 and 3 is the pressure skid which keeps the film 4 in contact with the gate. A lamp chamber 5 is provided behind the gate and in this chamber is mounted one or
50 more high pressure gaseous discharge lamps 6. The projection aperture is sealed by means of a sheet of suitable glass 7. The chamber 5 is supplied with a suitable
55 cooling medium such as water which is continually circulated through pipes 8 and 9. The lamp is mounted so that the aperture 2 is illuminated in the required manner and the inside of chamber 5 may be so shaped and polished as to provide
60 the required light control.

Where a plurality of lamps are provided they may be mounted in parallel to each other and where one or more of these lamps are stand-by or spare lamps they
65 may be mounted in an adjustable holder so that the position of the lamp relative to the projection aperture may be adjusted when required.

Dated this 21st day of October, 1935.

A. S. CACHEMAILLE,
Crown House, Aldwych, London, W.C.2,
Agent for the Applicants.

COMPLETE SPECIFICATION

Improvements in and relating to Cinematograph Projectors

70 We, THE BRITISH THOMSON-HOUSTON COMPANY, LIMITED, a British Company, having its registered office at Crown House, Aldwych, London, W.C.2,
STANLEY ROBERT EADE, of "The Elms,"
75 Clifton, and GEORGE SAIL CAMPBELL LUCAS, of 64, Fisher Avenue, Hillmorton Paddox, both of Rugby, in the County of Warwick, both British subjects, do hereby declare the nature of this invention and in what manner the same is to
80 be performed, to be particularly described

and ascertained in and by the following statement:—

This invention relates to cinematograph projectors and more particularly to the
85 application of gaseous discharge lamps to cinema projectors for the purpose of providing the source of illumination by means of which the film pictures are projected on a screen. It more particularly
90 refers to the application of "extra high pressure" discharge lamps which require for their successful operation to be cooled

by a circulating system containing water or other suitable cooling medium.

It is well known that to ensure safety in the projection of highly inflammable cinematograph films under modern conditions of intense illumination, special provisions must be made for cooling the projection gate and the circulation of water and air has, inter alia been proposed for this purpose.

The object of the present invention is to provide improved cooling means and to that end it consists in constructing the lamp container of a cinematograph projector in which one or more extra high pressure gaseous discharge lamps are housed integrally with the gate structure and in maintaining the lamp or lamps together with the whole structure in a cooled condition by water or other cooling medium in the lamp container.

The drawing accompanying the Provisional Specification diagrammatically illustrates one method of carrying this invention into effect. In the drawing 1 represents the projector gate provided with a projection aperture 2 and 3 is the pressure skid which keeps the film 4 in contact with the gate. A lamp chamber 5 is provided behind the gate and in this chamber is mounted one or more high pressure gaseous discharge lamps 6. The projection aperture is sealed by means of a sheet of suitable glass 7. The chamber 5 is supplied with a suitable cooling medium such as water which is continually circulated through pipes 8 and 9. The lamp is mounted so that the aperture 2 is illuminated in the required manner and the inside of chamber 5 may be so shaped and polished as to provide the required light control.

The accompanying drawing illustrates a further modification of this invention, the same references being used for like parts shown on the aforementioned drawing. In this form the cooling chamber 5 is divided into two portions, an outer chamber 10 and an inner chamber 11 containing the projector lamp or lamps 6. The inner chamber is filled with a suitable cooling liquid which may be chemically treated to prevent electrolysis, or it may be filled with softened and filtered water to remove any impurities which might come between the lamp and the lens. This inner chamber is cooled by a cooling medium such as water circulated through the outer chamber 10 through pipes 8 and 9. The inner chamber is provided with a glass window 7 which may be made con-

vex or concave so that the liquid between it and the lamp will form a condenser lens and so assist in obtaining the required light control. The back wall of the chamber 11 may also be suitably shaped to act as a reflector and may be provided with a reflecting surface.

Where a plurality of lamps are provided they may be mounted in parallel to each other and where one or more of these lamps are stand-by or spare lamps they may be mounted in an adjustable holder so that the position of the lamp relative to the projection aperture may be adjusted when required.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A cinematograph projection apparatus having one or more high pressure discharge lamps housed in a container formed integral with the projection gate, the lamp and gate being maintained in a cooled condition by a cooling medium contained in the lamp container.

2. A cinematograph projection apparatus as claimed in Claim 1 in which the container in which the lamp is housed is cooled by means of a cooling medium circulated through the container.

3. A cinematograph projection apparatus as claimed in Claim 1 in which the container in which the lamp is housed contains a cooling medium which is cooled by a medium circulated through an outer container.

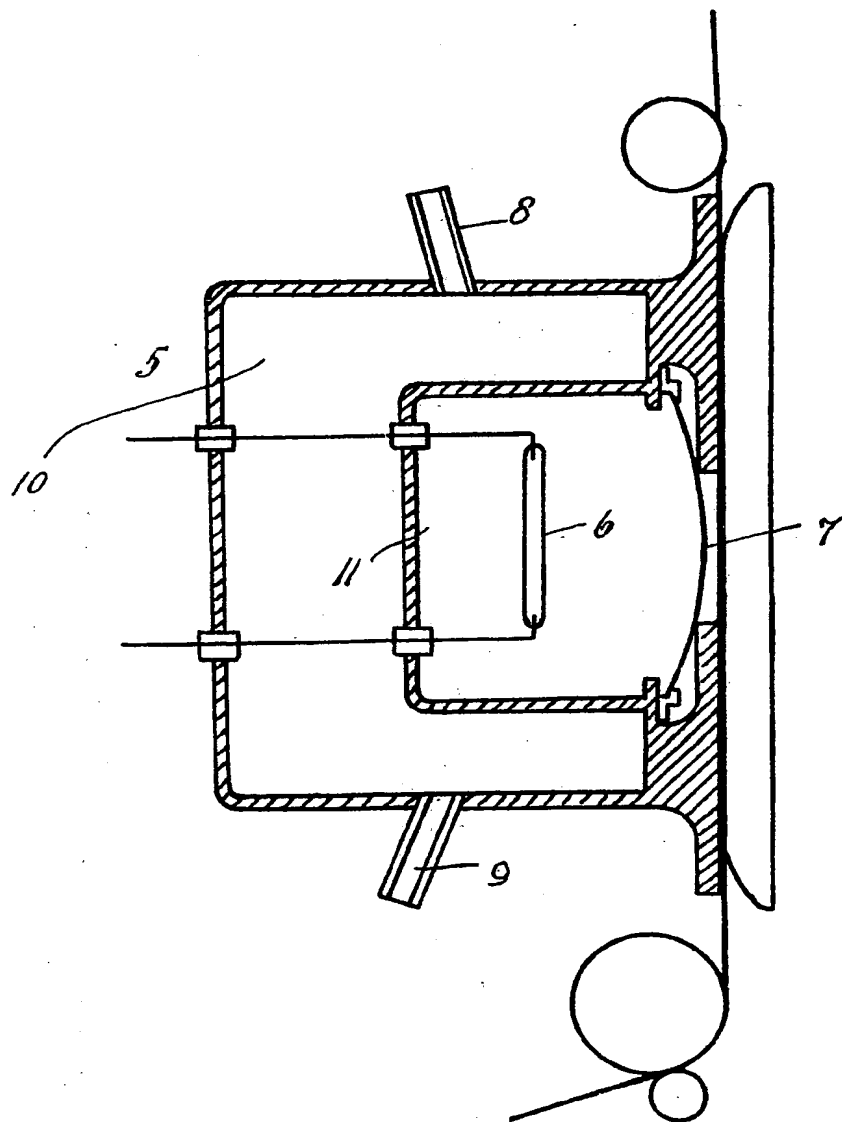
4. A cinematograph projection apparatus as claimed in Claim 1 in which the container in which the lamp is housed is provided with a transparent window which may be either concave or convex to assist in controlling the light.

5. A cinematograph projection apparatus as claimed in any of the preceding claims in which the container in which the lamp is housed is provided with a rear wall which is shaped so as to act as a reflector.

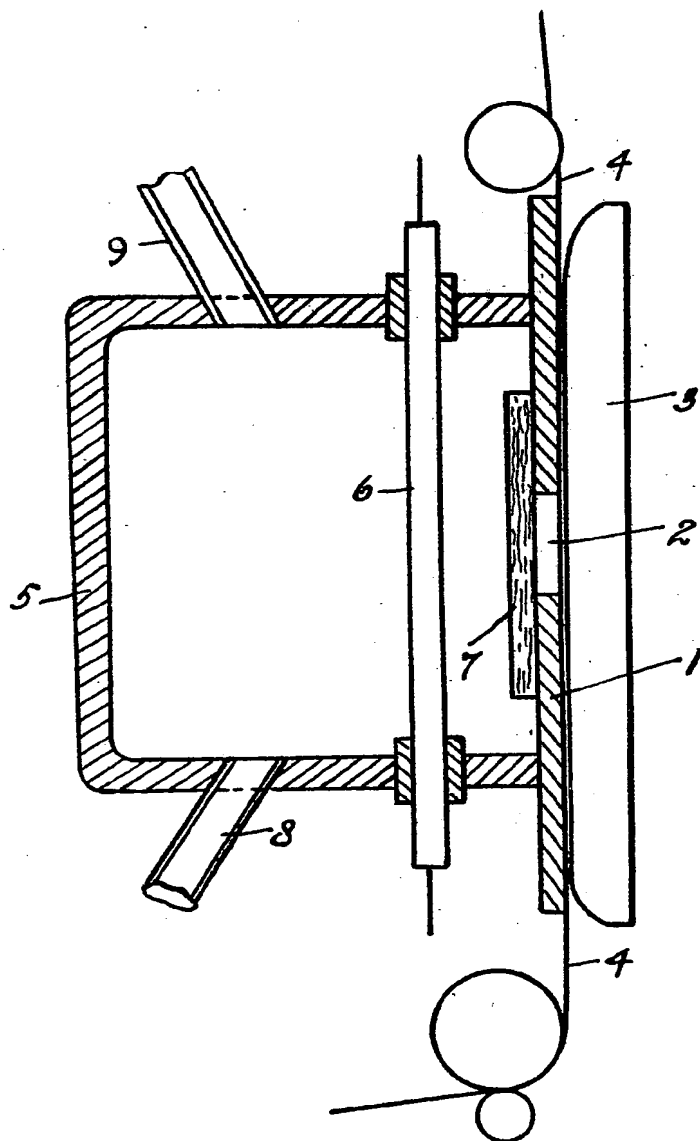
6. A cinematograph projection apparatus arranged and operating substantially as hereinbefore described with reference to the accompanying drawing or that left with the Provisional Specification.

Dated this 13th day of October, 1936.

A. S. CACHEMAILLE,
Crown House, Aldwych, London, W.C.2,
Agent for the Applicants.



[This Drawing is a full-size reproduction of the Original.]



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